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The Knothole, September 11, 1972

SUNY College of Environmental Science and Forestry Student Body

THE KNOTHOLE

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A Trip Through A Leaf

Having studied leaf structure with the aid of a powerful microscope, and having been told of the marvelous way in which leaves make and transport their food, I was naturally curious to see with my own eyes, what was going on inside every green leaf that spreads itself to the summer sunshine. So I went out to the edge of the forest, and picked out a large maple tree, the leaves, or rather a leaf of which, I was going to explore. So far so good, but now I was stuck. It was plain that either the leaf must be enlarged a million or more times, or else I must shrink to the size of a dust speck. In the first case, the leaf would get so large that it would probably spread over the whole forest, thereby causing unwanted publicity, so I finally decided to use the second method of dwarfing myself to smaller dimensions.

This stunt was not easy, but after a few minutes of concentration, I arrived at the desired size. But what strange world I found about me! The moss on which I had walked a few minutes before, was suddenly changed to a towering forest of branching, palm-like trees—in the midst of which, I found myself wedged between two of the highest tops.

I seemed to be stalled again, for how was I possibly to find, or having once found, to climb, the maple tree bearing the leaf which I was to explore? Just at this point, the branches were suddenly rent apart, and before me stood a gigantic, six-legged, red and vicious looking monster which I suppose must have been an ant. Thinking that I might as well take a chance now or never, I seized one of the bristles of his antenna, and felt myself lifted into the air, and carried along at a tremendous pace. I soon found that I was passing through a steep valley, flanked on either side by rough, brownish mountains. These were the bark ridges of the tree. At least I was now on the right track. After a long journey through these winding valleys, we—that is, the ant and I—emerged to a smoother region, and here we changed our direction. We rushed out along a narrow bridge-like affair, and before long we again changed direction, and sped off across a field of green. Just at this point, I decided to drop off and start my exploration, for I knew by the green color of the "ground," that I must be on a leaf.

So, I began to look for stomata which I knew were openings leading to the interior of the leaf. As these slits are found on the lower surface of leaves, I was in luck to find that I had been dropped off on the proper side, even though it took a little practice to walk upside down. After some searching, I found myself at the mouth of one of these entrances. Surrounding the narrow opening, were two, giant, bean-shaped

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affairs with transparent walls, and big, green, moving bodies within. I found out later that these were chloroplasts, so-called, while the bean-shaped containers were guard cells which control the size of the slit. But at present I was mystified by a subdued roaring sound which seemed to come from within the leaf.

Waiting no longer, I plunged upward through the stoma, and emerging on the other side, found myself in a new and strange world. The thunderous roar was overpowering now, and seemed to come from all around me. The light of day was shut off, and instead, there filtered through from above, a soft diffused light which barely showed the passageways leading out in all directions from the high walled chamber in which I stood.

Determined to discover the cause of the noise, I started out through one of these tunnels. I had not gone very far, before my eyes became accustomed to the semi-darkness, and it was right here that I saw the whole process of food formation going on—for it is in the leaves as you probably know that the tree makes its food. Opposite me was a transparent wall which seemed to enclose a room-like space. Within this room, I saw again the large, green chloroplasts which I had notices first in the guard cells. These plastids were constantly moving around the room like a train of cars, one behind the other. Looking more closely I noticed that the walls were kept continually moist by means of conduit-like veins which ran out in all directions, and through which, water was constantly flowing out to all parts of the leaf. Like any moist object, these walls and surfaces were losing water by evaporation. Because of my shrunken size, I could see the tiny particles or molecules as they left the damp walls, and started out toward the stoma through which they would escape to the outside. I now had one of the reasons why a tree must take up literally tons of water during a growing season if it is to live, and grow.

But now for the remarkable change that was causing the ear-splitting noise. As I have said before, the sunlight was filtering through from above; the water was oozing from cell to cell—or room to room; particles or molecules of carbon dioxide gas from the air were coming in from the outside, and penetrating the cell walls. And finally by means of the sun's radiant energy, these molecules of gas and water were—under the influence of the "green stuff" (chlorophyll) in the chloroplasts—being ripped and torn apart, while from the fragments was being built beautifully structured molecules of simple sugars which are the basic food of all green plants. Here before my eyes was the process of which I had been told, and of which chemists still have something to learn.

But this was not all. As the new products were formed and transferred to the growing parts of the gree, molecules of oxygen were released, and made their way out from the scene of action. And so in this way, green plants (in light) are constantly giving off oxygen which we must have in order to live.

I searched no further for the present, but came out and "back to earth" with the firm resolve to write up my experience, in the hope that after having read it, you would not pass by as common, every green leaf that spreads itself in the summer sunshine.

-Dr. William M. Harlow
(written when a freshman student - 1921!)

Those of us who have frequented the library the past few years should immediately sense a change, a more somber atmosphere this fall. I notices it my first day back -- Mr. Knouse's door, almost always open, was closed and Mr. Hoverter's office was dark. Both men died this summer. Mr. Knouse was known to many of us for his always enthusiastic assistance with any problem. His love for the library and his sincere pleasure with knowing personally as many of the students as possible was obvious. Though Mr. Hoverter, as Head Librarian, had less contact with students, he too was friendly and willing to help. I think that all of us who have known these men share in the loss.

-Barb Steves

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Effective August 1st, Dr. Robert V. Jelinek, program director for engineering chemistry for the National Science Foundation, was appointed Dean of the School of Environmental and Resource Engineering. Dr. Jelinek is the first person to hold the deanship of this school which was re-organized a little over a year ago to focus more sharply on critical environmental concerns.

The new School of Environmental and Resource Engineering involves the joint effort of the Departments of Forest Engineering, Paper Science and Engineering, and Wood Products Engineering to solve the problems of utilization of forest resources with the minimum disturbance of the natural environment, with optimum economic effectiveness for wood-based industries, and positive abatement of air and water pollution.

Dr. Jelinek was with the National Science Foundation in Washington, D.C. for one year, while on leave from Syracuse University. By joining the SUNY College of Environmental Science and Forestry, he concludes an 18-year career with Syracuse's L. C. Smith College of Engineering. We'd like to welcome him to our College.

-SUNY College of
Environmental Science
Press Release

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100 YEARS AGO!!

Check out the display case near the circulation desk in Moon Memorial Library for a look at hunting equipment of 1872 as compared to today.

Featured is the muzzle loading shotgun of a market hunter and all accessories of his livelihood. Hunters can see how really simple it is to shoot with today's semi-automatic and repeating firearms.

The exhibit will be shown until October 1st to coincide with the Waterfowl Identification Course which started September 8th at 7:00 p.m. in 5 Illick Hall and continues each Friday night.

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President Nixon has proclaimed September 23, 1972 as National Hunting Day to honor sportsmen as supporting conservation efforts through licensing fees, private organizations such as "Ducks Unlimited," Trout Unlimited," etc.

-Ron Frodelius

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WHAT IS FORESTRY CLUB?

As another fall rolls around with its annual crop of inquisitive freshmen and new transfers on the loose, the same questions come up each year regarding the Forestry Club. What is it? What does it do? Who is in it? and so on. I'll try to answer some of these questions here. The Forestry Club's main activity, the Woodsmen's Team, is involved in several meets and exhibitions throughout the year. The first is the Annual Fall Barbeque, which the Forestry Club plans and runs each year. This is an all-day event out at Green Lakes State Park during which the various classes compete in woodsmen type events such as speed-chop, ax-throw, log-roll and many others. Wrapping up this day, during which all classes are cancelled for Forestry students, is a barbequed chicken dinner with all the trimmings. Ample cider is also available for all who savor that delectable fall product. There's always plenty to do and people to meet, so plan on being there the eleventh of October. After this event, things quiet down for a while, with hopefully movies and speakers presented by Forestry Club now and then. We've got some good ideas about programs which should prove interesting this fall. Later on, towards the end of January, the team makes the long trek to the MadDonald meet, held near Montreal. In this meet forestry colleges from all over the northeast compete, Maine, Michigan, Pennsylvania and many Canadian schools, to name a few. One learns how to dress for the cold pretty quickly if he doesn't know already. When this is over and the team is back home, we all get a chance to rest up and practice for the spring meet, our Annual Tri-State meet. Between West Virginia, Penn State and us. It will be held at Syracuse this year about the middle of April. With a little luck and much practice our boys should be able to win the meet again, which would make an unprecedented four year winning streak. So much for what the Club does.

Anybody who is a student here at the College, grads included, can participate in Club activities. For each meet separate tryouts are conducted, so again, anybody here as a student can try out for and possibly make the team.

Our first meeting is going to be Thursday, September 14, in the Nifkin Lounge (Marshall Hall) at 7 p.m. There's a lot of work to be done — so I hope to see you there!

-Don Schaufler

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